

Life not a breeze for wind farms

But falling production costs fuel optimism at Utah's Wasatch Wind

By [Jeremy Twitchell](#)

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SPANISH FORK — An embattled wind farm development set to begin construction next year in Spanish Fork may serve as a microcosm for the future of wind energy in Utah and across the nation.

The farm, a project of Utah-based Wasatch Wind, will be the state's first commercial wind farm. It already has been delayed after citizens in Spanish Fork requested that it be moved farther from homes, to a site at the mouth of Spanish Fork Canyon.

Finding investors was difficult, and the looming expiration date on a state tax credit, on which the project depends, promises an arduous battle still ahead as supporters work to get the credit restored.

Like the wind power industry as a whole, the Wasatch Wind project has weathered the early storm and is poised to move forward but remains shrouded in lingering questions.

Wind's comeback

Wind energy, at one point essentially doomed because of prohibitive production costs associated with inferior technology, has made a resurgence in the past 20 years as technological advances have made it financially viable.

Prices, which were as high as 80 cents per kilowatt-hour in 1980, have fallen to between 4 cents and 6 cents per kilowatt-hour. The U.S. Department of Energy hopes to decrease that even further, to 3 cents per kilowatt-hour by 2012.

Improvements in the wind turbine airfoils, which were originally based on designs that pre-dated World War II, were the first major

breakthrough, said Jim Johnson, a site operations engineer for the National Wind Technology Center, a division of the DOE, near Boulder, Colo.

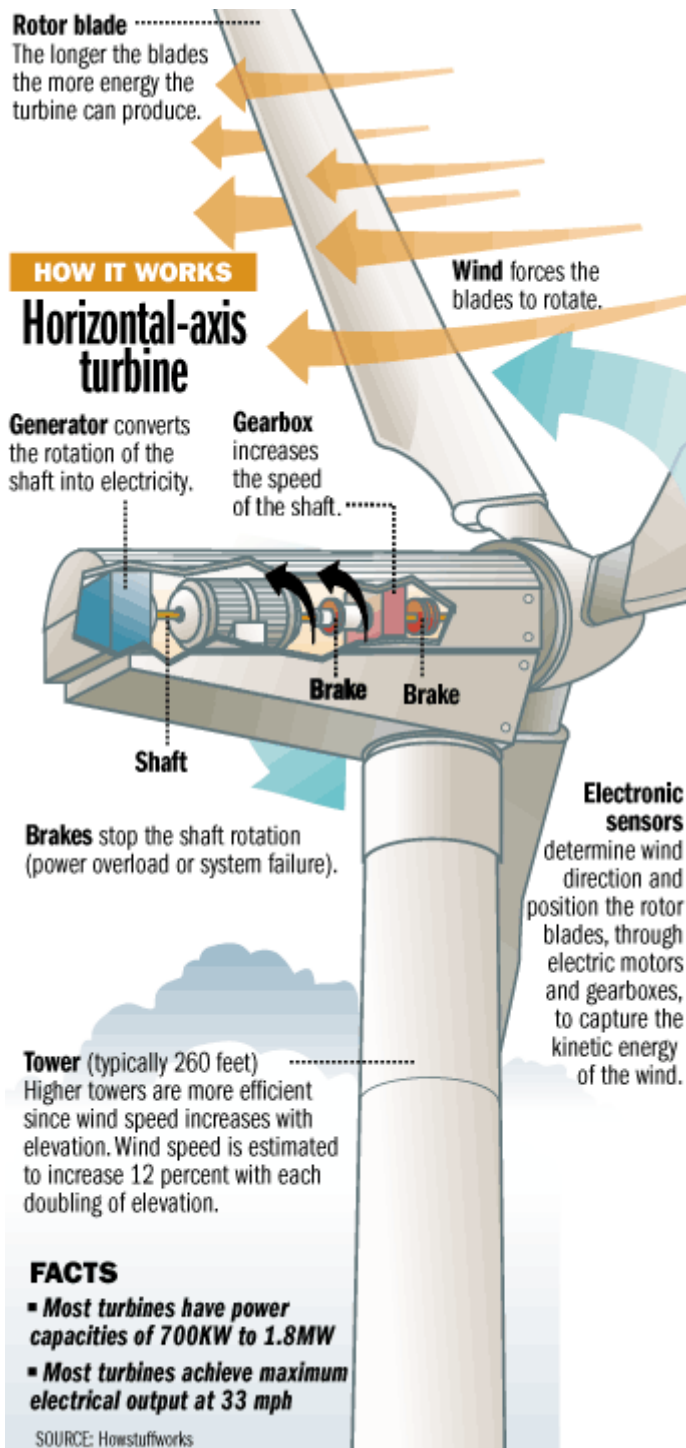
"If you pick a rotor that's 10 meters across and replace the original air foil with a new, fiberglass one, you increase energy production by 30 percent," he said.

According to DOE statistics, wind power is the fastest-growing energy technology in the United States, expanding at an annual rate of 30 percent to 40 percent. Total wind energy capacity in the United States has more than doubled since 2002, and last month the industry hit the milestone of 10,000 megawatts of installed capacity — enough to power 2.5 million homes on the average day.



Windmills are situated in a high-wind area near Camp Williams, background. Wasatch Wind's farm is planned at the mouth of Spanish Fork Canyon.

Stuart Johnson, Deseret Morning News



Dave Eskelsen, spokesman for PacifiCorp, which serves power customers in six Western states, including Utah, said falling prices for wind energy have made it a viable alternative.

"I think that's why you're seeing more utilities across the nation and around the world investing in wind energy," he said.

Tax credits

In the United States, however, the development of wind farms has been tied to the availability of renewable energy tax credits. And since the federal credit has historically been renewed every other year, growth has been unstable. In years where the credit is available, the number of new projects explodes. In years when it is not, it falls off to nearly nothing.

Federal lawmakers changed that in 2005, when they reauthorized the credit through December 2007. The law, which gives energy producers a 1.9-cent tax credit for every kilowatt-hour of wind energy they produce for the first 10 years of a project's life, is often "the difference between profitability and failure," Johnson said.

Utah has traditionally offered an additional tax credit for producers of alternative energies. However, the most recent credit is set to expire at the end of the year, and it was not renewed in this year's legislative session.

Wasatch Wind already has signed a purchase agreement with PacifiCorp to sell all the power its Spanish Fork project produces for the first 20 years

of its life. But without the state tax credit, which gives a one-time benefit based on the value of the turbines, Wasatch Wind president Tracy Livingston worries whether the project will break even.

But that, Livingston said, isn't his primary concern.

"The wind energy business is very competitive, and projects are gravitating to states with incentives," he said. "With no incentives here, investors are looking elsewhere. (Restoring the tax

incentive) is not just a function of whether our project will go forward; it's going to have an impact on whether wind energy will go forward in the state."

Livingston said he has lost one investor who wanted to support projects in states where wind energy is flourishing.

Utah Clean Energy, a nonprofit group dedicated to promoting wind and other sources of renewable energy, has been working with legislators to get the credit restored in the 2007 session, and proponents hope to make it retroactive to cover any gaps.

"All energy sources have subsidies. ... This is the state incentive for renewable energy," said Sarah Wright, executive director of Utah Clean Energy. "So it just levels the playing field."

Wasatch Wind is waiting for Spanish Fork to annex the land for the wind farm and plans to begin construction in early 2007. The project is slated for completion in December 2007, and as long as the credit is in place by then, Livingston said there will be no problem.

"We're optimistic that the Legislature will restore this credit, and so we are moving forward with our development," he said.

Utah breezes

The success or failure of Wasatch Wind's venture could be a deciding factor in whether other projects are built around the state. Utah does not have as many ideal locations as other Western states, but it does have enough for some degree of utility production.

The National Renewable Energy Laboratory, a division of the DOE, has compiled a map of potential wind sites in Utah. The NREL's site maps work on a scale of one to seven, with seven being "superb" and one being "poor." Most wind farms are built in areas with a rating of five or six, of which Utah has several, particularly in central and southeastern areas.

However, wind works much like real estate, in that the most important factors are location, location, location. While many Utah sites have ideal wind conditions, they are located on mountain ridges in remote areas, far from existing power transmission lines, and therefore financially unsound for development.

"If you have a good wind site that is fairly far out there and you have to build a transmission line, it raises the cost of the power from that source," Eskelsen said. "That, in turn, raises the amount you have to charge for that power."

Next-generation wind turbines could change that. Researchers at the National Wind Technology Center are working on turbines that could profitably operate in areas with a wind rating of three or four, which are more common in Utah and frequently located closer to urban areas.

In the meantime, however, wind energy is still widely available here, through PacifiCorp's Blue Sky Program. The company purchases power from major wind farms in Washington, Oregon and Wyoming, which customers can in turn purchase for a small additional charge on their bill of \$1.95 per 100 kilowatt-hours. (The average customer uses 1,000 kilowatt-hours per month, according to PacifiCorp.)

The Blue Sky program, one of 600 similar programs throughout the nation, ranked second in customer participation and third in the amount of renewable energy purchased, according to an April 2006 newsletter published by PacifiCorp. Participation grew by 17 percent in 2005, to 44,000 customers.

PacifiCorp also buys wind energy from other projects, which is separate from the Blue Sky program and is part of the overall energy mix that all customers receive, regardless of participation in Blue Sky. The Wasatch Wind farm will be one such project.

Wind's future

The environmental benefits and zero fuel cost associated with wind energy have been the driving factors behind its popularity. Advocates say the nation could theoretically meet all its energy needs through wind power, and President Bush has called for the nation to increase its total dependency on wind energy to 20 percent by 2020.

But despite all that, some say there are certain realities of wind power that will prevent it from becoming a major source of energy for the foreseeable future.

"The drawback with wind power is it can't generate the same volume as coal or natural gas, and it's not as widely available," Eskelsen said. "Availability is a key factor in utility evaluation."

Eskelsen said coal plants are available around 90 percent of the time, while even the best wind sites are only available 30 percent of the time. The low availability means a power provider cannot fall back on it when usage is at its peak, such as a hot summer day.

PacifiCorp hopes to obtain 400 megawatts of total wind capacity by the end of the year and then expand that number to 1,400 megawatts by 2019. The company is interested in acquiring more wind power, Eskelsen said, but the price has to be right.

"The issue for us is that the law requires us to seek low-cost, low-risk acquisitions, and we take that responsibility very seriously," he said.

David Jones is the renewable energy markets editor for Platts, an international energy market research firm. He said while the availability and access to transmission lines pose serious challenges to wind energy in the United States, particularly in the West, the market is still "flourishing."

"Certainly in the U.S., the outlook for wind energy is very bright," Jones said.

Whatever happens with wind power in the state's future, the fates of the Spanish Fork project and other projects in the early phases of development will play major roles.

"We work very closely with the Department of Energy, and it's their belief, and I agree with them, that once you get the project in the ground, you jump-start the industry," Wright said. "It gives people a chance to look at the product, you know, kick the tires and see what it's about."

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